We claim:

1. An isolated nucleic acid sequence which codes for a polypeptide having nitrilase activity, selected from the group of:

   a) a nucleic acid sequence having the sequence depicted in SEQ ID NO: 1,

   b) nucleic acid sequences which are derived from the nucleic acid sequence depicted in SEQ ID NO: 1 as a result of the degeneracy of the genetic code,

   c) derivatives of the nucleic acid sequence depicted in SEQ ID NO: 1, which code for polypeptides having the amino acid sequences depicted in SEQ ID NO: 2 and have at least 95% homology at the amino acid level, with negligible reduction in the enzymatic action of the polypeptides.

2. An amino acid sequence encoded by a nucleic acid sequence as claimed in claim 1.

3. An amino acid sequence as claimed in claim 2, encoded by the sequence depicted in SEQ ID NO: 1.

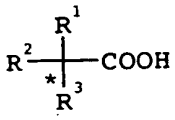
4. A nucleic acid construct comprising a nucleic acid sequence as claimed in claim 1, ~~the~~ nucleic acid sequence being linked to one or more regulatory signals.

5. A vector comprising a nucleic acid sequence as claimed in claim 1 or a nucleic acid construct as claimed in claim 4.

6. A microorganism comprising at least one nucleic acid sequence as claimed in claim 1 or at least one nucleic acid construct as claimed in claim 4.

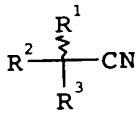
7. A microorganism as claimed in claim 6, where the microorganism is a bacterium of the genera Escherichia, Pseudomonas or Alcaligenes.

8. A process for preparing chiral carboxylic acids of the general formula I



(I),

which comprises converting racemic nitriles of the general formula II



(II)

in the presence of an amino acid sequence as claimed in claim 2 or 3 or a growing, dormant or disrupted microorganism as claimed in claim 6 or 7, and where at least 25 mmol of nitrile are converted per h and per mg of protein, or 25 mmol of nitrile are converted per h and per g of dry weight, into the chiral carboxylic acids,

where the substituents and variables in the formulae I and II have the following meanings:

* an optically active center

R^1, R^2, R^3 independently of one another hydrogen, substituted or unsubstituted, branched or unbranched C_1-C_{10}-alkyl, C_2-C_{10}-alkenyl, substituted or unsubstituted aryl, hetaryl, OR^4 or NR^4R^5 and where the radicals R^1, R^2 and R^3 are always different,

R^4 hydrogen, substituted or unsubstituted, branched or unbranched C_1-C_{10}-alkyl, C_2-C_{10}-alkenyl, C_1-C_{10}-alkylcarbonyl, C_2-C_{10}-alkenylcarbonyl, aryl, arylcarbonyl, hetaryl or hetarylcarbonyl,

R^5 hydrogen, substituted or unsubstituted, branched or unbranched C_1-C_{10}-alkyl, C_2-C_{10}-alkenyl, aryl or hetaryl.

9. A process as claimed in claim ~~8~~, wherein one of the substituents R^1, R^2 or R^3 is OR^4.

10. A process as claimed in claim 8 or 9, wherein one of the substituents R^1, R^2 or R^3 is aryl.

11. A process as claimed in any of claims 8 to 10, wherein the process is carried out in an aqueous reaction solution at a pH between 4 to [sic] 11.

12. A process as claimed in any of claims 8 to 11, wherein from 0.01 to 10% by weight of nitrile or from 0.01 to 10% by weight of a corresponding aldehyde or ketone and from 0.01 to 10% by weight of hydrocyanic acid are reacted in the process.

13. A process as claimed in any of claims 8 to 12, wherein the process is carried out at a temperature between 0°C to [sic] 80°C.

14. A process as claimed in any of claims 8 to 13, wherein the chiral carboxylic acid is isolated from the reaction solution in yields of from 60 to 100% by extraction or crystallization or extraction and crystallization.

15. A process as claimed in any of claims 8 to 14, wherein the chiral carboxylic acid has an optical purity of at least 90%ee.